



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/702,202   | 11/04/2003  | Benjamin Edward Russ | 81163/7114          | 7112             |
| 37123  | 7590        | 09/21/2004           | EXAMINER            |                  |
| FITCH EVEN TABIN & FLANNERY<br>120 SOUTH LASALLE SUITE 1600<br>CHICAGO, IL 60603 |             |                      | PATEL, ASHOK        |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2879                |                  |

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/702,202

Applicant(s)

RUSS ET AL.

Examiner

Ashok Patel

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>0604;0604;0604</u> . | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 2879

1. Applicant's election of Group I, claims 1-14 is acknowledged with cancellation of claims 15-44.

2. Claims 1-9 and 13 of this application conflict with claims 1, 3, 6, 7 and 15 of Application No. 10/877,371 and claims 1-6, 17, 2 and 26 of Application No. 10/877,509. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

3. Claims 1-3, 6-9 and 13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3, 6 and 15 of copending Application No. 10/877,371. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending Application No. 10/877,371 recites a cathode plate including features as recited in instant claims 1-3, 6-9 and 13 as follows:

Art Unit: 2879

| Instant application 10/702,202 | Co-pending application 10/877,371 |
|--------------------------------|-----------------------------------|
| 1                              | 1                                 |
| 2                              | 1                                 |
| 3                              | 3                                 |
| 6                              | 6                                 |
| 7                              | 7                                 |
| 8                              | 6                                 |
| 9                              | 6                                 |
| 13                             | 15                                |

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

4. Claims 1-8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6, 17, 22 and 26 of copending Application No. 10/877,509. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending Application No. 10/877,509 recites a cathode plate including features as recited in instant claims 1-8 as follows:

| Instant application 10/702,202 | Co-pending application 10/877,509 |
|--------------------------------|-----------------------------------|
| 1                              | 1                                 |
| 2                              | 2                                 |

Art Unit: 2879

|   |               |
|---|---------------|
| 3 | 5, 17, 22, 26 |
| 4 | 4             |
| 5 | 3             |
| 6 | 1             |
| 7 | 6             |
| 8 | 1             |

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-5, 10, 12 and 14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Xie (USPN 6,094,001, of record).

Xie discloses applicant's claimed cathode plate (Figures 1-2; 4; 5) of an FED including: a cathode substrate (114; 214; 414) of

Art Unit: 2879

the field emission display; a plurality of emitter lines (115, 116, 117; 216, 217; 415) formed on the cathode substrate.

As to claim 2, Xie discloses the cathode plate further including: a plurality of linear isolation barriers (118; 218) attached to the cathode substrate, wherein the plurality of linear isolation barriers separate a respective one or more of the plurality of emitter lines from others of the plurality of emitter lines.

As to claim 3, Xie discloses the linear isolation barriers adapted to contact a plurality of gate wires of a gate frame and dampen vibrations from a driving frequency. The limitation "adapted to contact a plurality of gate wires of a gate frame and dampen vibrations from a driving frequency" is considered an optional limitation, and therefore does not give a patentable weight. See M.P.E.P. 2106 (Section C). The Examiner alternatively considers the limitation after the term "adapted to" as functional, which is narrative.

As to claim 4, as shown in Figures 1 and 2, Xie discloses each one of the plurality of emitter lines positioned between a respective two of the plurality of linear isolation barriers.

As to claim 5, Xie discloses the plurality of isolation barriers including plurality of ribs (455).

Art Unit: 2879

As to claim 10, the Examiner interprets elements 455 as alignment barriers (due to its height characteristic) for positioning aligning other components of the FED.

As to claim 12, Xie discloses the plurality of emitter lines each comprising a plurality of conical emitters deposited closely together in a linear fashion on the cathode substrate.

As to claim 14, Xie discloses each of the plurality of emitter lines including a continuous line (which extends perpendicular to the plane of paper) of deposited emitter material extending across the cathode substrate.

7. Claims 1-9 and 12-14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ju et al (USPN 5,977,703).

Ju et al disclose applicant's claimed cathode plate (Figures 2, 3, 4) of an FED including: a cathode substrate (100) of the field emission display; a plurality of emitter lines (140, X- address line, col. 3, lines 53-54) formed on the cathode substrate.

As to claim 2, Ju et al disclose the cathode plate further including: a plurality of linear isolation barriers (higher portion of the substrate 100 surrounding elements 130 and 140) attached to the cathode substrate, wherein the plurality of linear isolation barriers (Figure 3) separate a respective one or more of the

Art Unit: 2879

plurality of emitter lines from others of the plurality of emitter lines.

As to claim 3, Ju et al disclose the linear isolation barriers. As to the limitation "adapted to contact a plurality of gate wires of a gate frame and dampen vibrations from a driving frequency", it is considered as an optional limitation/language. See M.P.E.P. 2106(Section C).

As to claim 4, as shown in Figures 3 and 4, Ju et al disclose each one of the plurality of emitter lines positioned between a respective two of the plurality of linear isolation barriers.

As to claim 5, Ju et al disclose the plurality of isolation barriers including plurality of ribs (higher portion of the substrate surrounding emitters and emitter lines 100).

As to claim 6, Ju et al disclose the cathode plate including a plurality of in-laid isolation barriers (indented portions of the substrate in which the emitter and emitter lines are located) are formed with a depth of a top surface of the cathode substrate, wherein each one or more of the plurality of emitter lines is formed within a respective one of the plurality of in-laid isolation barriers.

As to claim 7, the limitation after the term "adapted to" is optional language/limitation, as mentioned earlier in this office action, and is not given a patentable weight. The Examiner

Art Unit: 2879

alternatively considers the limitation after the term "adapted to" as functional, which is narrative.

As to claim 8, Ju et al disclose each one of the plurality of emitter lines is positioned within the respective one of the plurality of in-laid isolation barriers.

As to claim 9, Ju et al disclose the plurality of in-laid isolation barriers including a plurality of trenches (indentations of the substrate portion in which the emitter and emitter lines are located).

As to claim 12, Ju et al disclose the plurality of emitter lines 140 each including a plurality of conical emitters 130 deposited closely together in a linear fashion on the cathode substrate.

As to claim 13, Ju et al disclose each of the plurality of emitter lines (140) includes a plurality of emitter portions (130) deposited on a surface of the cathode substrate, wherein there is no separating structure positioned in between adjacent emitter portions on the surface of the cathode substrate.

As to claim 14, Ju et al disclose each of the plurality of emitter lines including a continuous line of deposited emitter material extending across the cathode substrate (Figure 3A).

Art Unit: 2879

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Xie, as applied to claim 1, in view of Kumar et al (USPN 5,548,185, of record).

Xie does not disclose the emitter lines including a smooth layer of electron emitting material as claimed by applicant. Although providing the emitter of many different possible shapes are known in the cathode plate device art, Kumar et al is cited for showing a cathode plate including a smooth layer (flat top) of emitters, as claimed by applicant for emitting electrons.

Consequently, it would have been obvious to one of ordinary skill in the art to provide Xie's cathode plate including smooth

Art Unit: 2879

layer of the emitter as taught by Kumar et al for emitting electrons from its smooth flat top portion.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ju et al, as applied to claim 1, in view of Kumar et al (USPN 5,548,185, of record).

Ju et al do not disclose the emitter lines including a smooth layer of electron emitting material as claimed by applicant. Although providing the emitter of many different possible shapes are known in the cathode plate device art, Kumar et al is cited for showing a cathode plate including a smooth layer (flat top) of emitters, as claimed by applicant for emitting electrons.

Consequently, it would have been obvious to one of ordinary skill in the art to provide Ju et al's cathode plate including smooth layer of the emitter as taught by Kumar et al for emitting electrons from its smooth flat top portion.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Kuo is cited for showing general structure of a cathode plate including in-laid isolation barriers.

Art Unit: 2879

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashok Patel whose telephone number is 571-272-2456. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.

  
Ashok Patel  
Primary Examiner  
Art Unit 2879